dsPIC33EP512MU814

dsPIC33EP512MU814 144-pin TQFP to 100-pin Motor Control Plug-In Module (PIM) Information Sheet

OVERVIEW

The dsPIC33EP512MU814 Motor Control PIM is designed to demonstrate the capabilities of the dsPIC33EP512MU814 device using development boards such as the dsPICDEM™ MCLV, MCHV, and MCSM Development Boards (DM330021, DM330023, and DM330022), which support 100-pin PIM interfaces.

The dsPIC33EP512MU814 is a high performance 16-bit Digital Signal Controller. This device is equipped with Peripheral Pin Select (PPS), which allows many of the digital peripherals to be remapped to use any number of pins on the device. Because the dsPIC33EP512MU814 device is in a 144-pin package, only some of the pins are connected to the 100-pin PIM sockets; the remaining pins are routed to test points (i.e., RA9, RA10, etc.), providing users with full access to all available pins. Refer to the device pinouts (see Figure 1) and the PIM schematics (Figure 2) for additional information.

Table 1 shows the mapping between the 100-pin PIM interface board functions and the device pins.

TABLE 1: 144-PIN TO 100-PIN PIM

Device Pin #	dsPIC33EP512MU814 Functional Description	PIM Pin #	Device Pin #	dsPIC33EP512MU814 Functional Description	PIM Pin #
1	RP127/RG15	TP	29	RK1	TP
2	V$_{DD}$	—	30	AN5/C1INA/VBUSON/VBUSST/RPI37/RB5	20
3	AN29/PWM3H/RP85/RE5	3	31	AN4/C1INB/USBOEN/RPI36/RB4	21
4	AN30/PWM4L/RPI86/RE6	4	32	AN3/C2INA/VPIO/RPI35/RB3	22
5	AN31/PWM4H/RP87/RE7	5	33	AN2/C2INB/VMIO/RPI34/RB2	23
6	PWM7L/PMA8/RJ8	TP	34	PGEC3/AN1/RPI33/RB1	24
7	PWM7H/PMA9/RJ9	TP	35	PGED3/AN0/RPI32/RB0	25
8	PMA10/RJ10	TP	36	V$_{SS}$	—
9	PMA11/RJ11	TP	37	PGEC1/AN6/RPI38/RB6	26
10	AN16/PWM5L/RPI49/RC1	78	38	PGED1/AN7/RCV/RPI39/RB7	27
11	AN17/PWM5H/RPI50/RC2	77	39	V$_{REF}$-/RA9	TP
12	AN18/PWM6L/RPI51/RC3	18	40	V$_{REF}$+/RA10	TP
13	AN19/PWM6H/RPI52/RC4	19	41	AV$_{DD}$	—
14	PMA12/RJ12	TP	42	AV$_{SS}$	—
15	PMA13/RJ13	TP	43	PMD0/RH0	TP
16	C1IND/SCK2/RP118/RG6	TP	44	PMD1/RH1	TP
17	C1INC/SDI2/RPI119/RG7	TP	45	PMD2/RH2	TP
18	C2IND/SDO2/RP120/RG8	TP	46	PMD3/RH3	TP
19	MCLR	13	47	AN8/RPI40/RB8	32
20	C2INC/RPI121/RG9	TP	48	AN9/RPI41/RB9	33
21	RJ14	TP	49	AN10/CV$_{REF}$/RPI42/RB10	TP
22	RJ15	TP	50	AN11/RPI43/RB11	35
23	V$_{SS}$	—	51	V$_{SS}$	—
24	V$_{DD}$	—	52	V$_{DD}$	—
25	TMS/RPI16/RA0	TP	53	PMRD/RK15	TP
26	AN20/RPI88/RE8	TP	54	PMWR/RK14	TP
27	AN21/RPI89/RE9	TP	55	PMBE/RK13	TP
28	RK0	TP	56	TCK/RPI17/RA1	TP

Legend: TP = Test Point   — = This pin is tied to the power supply rail
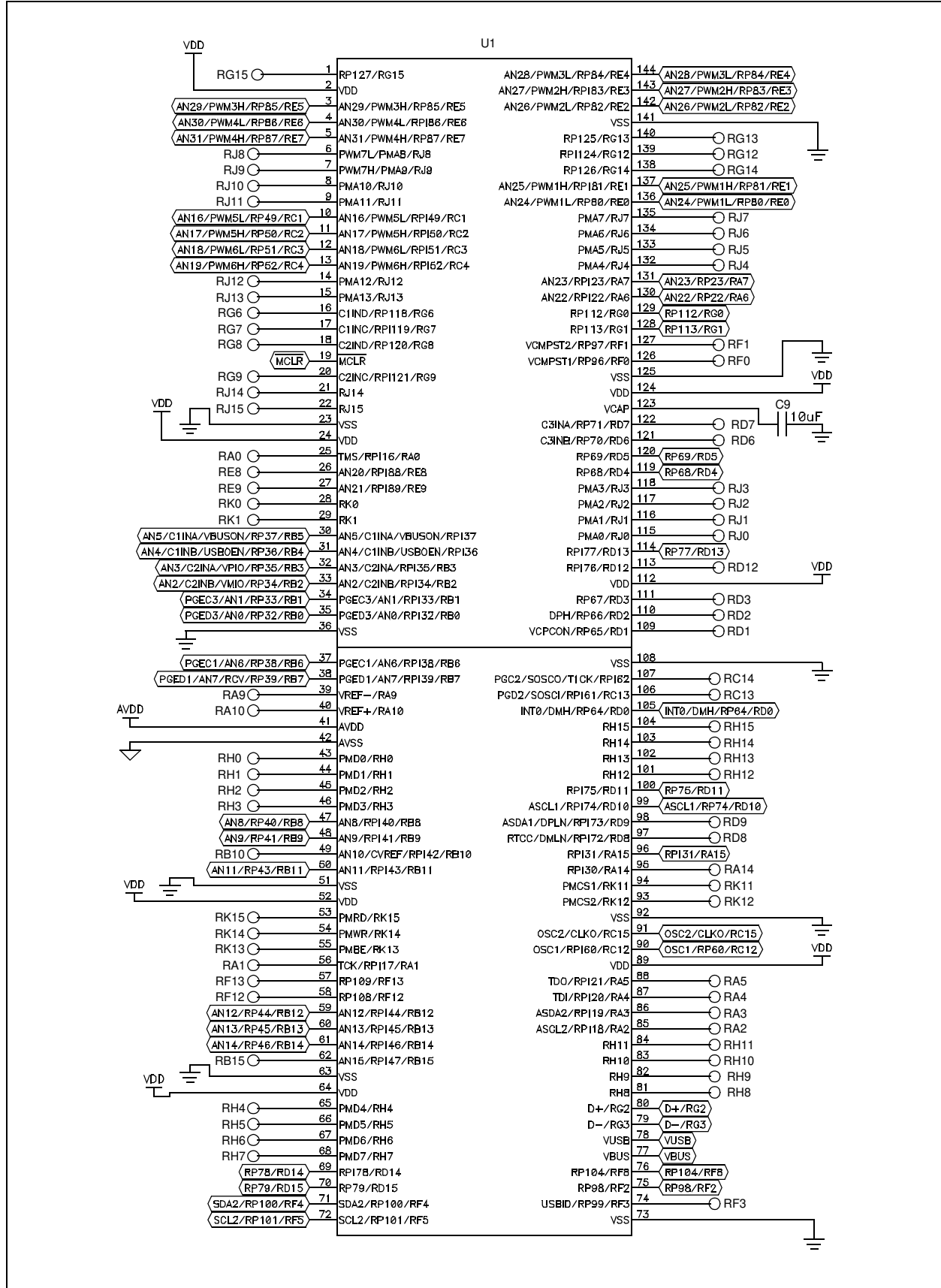
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TABLE 1: 144-PIN TO 100-PIN PIM (CONTINUED)

Device Pin #	dsPIC33EP512MU814 Functional Description	PIM Pin #	Device Pin #	dsPIC33EP512MU814 Functional Description	PIM Pin #
57	RP109/RF13	TP	101	RH12	TP
58	RP108/RF12	TP	102	RH13	TP
59	AN12/RPI44/RB12	41	103	RH14	TP
60	AN13/RPI45/RB13	42	104	RH15	TP
61	AN14/RPI46/RB14	43	105	INT0/DMH/RP64/RD0	72
62	AN15/RPI47/RB15	TP	106	PGED2/SOSCI/C3IND/RPI61/RC13	TP
63	VSS	—	107	PGEC2/SOSCO/C3INC/T1CK/RPI62/RC14	TP
64	VDD	—	108	VSS	—
65	PMD4/RH4	TP	109	VCPCON/RP65/RD1	TP
66	PMD5/RH5	TP	110	DPH/RP66/RD2	TP
67	PMD6/RH6	TP	111	RP67/RD3	TP
68	PMD7/RH7	TP	112	VDD	—
69	RPI78/RD14	47	113	RPI76/RD12	TP
70	RP79/RD15	48	114	RPI77/RD13	76
71	SDA2/RP100/RF4	49	115	PMA0/RJ0	TP
72	SCL2/RP101/RF5	50	116	PMA1/RJ1	TP
73	VSS	—	117	PMA2/RJ2	TP
74	USBID/RP99/RF3	TP	118	PMA3/RJ3	TP
75	RP98/RF2	51	119	RP68/RD4	79
76	RP104/RF8	52	120	RP69/RD5	80
77	VBUS	54	121	C3INB/RP70/RD6	TP
78	VUSB	55	122	C3INA/VCMPST3/RP71/RD7	TP
79	D-/RG3	56	123	VCAP	85
80	D+/RG2	57	124	VDD	—
81	RH8	TP	125	VSS	—
82	RH9	TP	126	VCMPST1/RP96/RF0	TP
83	RH10	TP	127	VCMPST2/RP97/RF1	TP
84	RH11	TP	128	RP113/RG1	83
85	ASCL2/RPI18/RA2	TP	129	RP112/RG0	84
86	ASDA2/RPI19/RA3	TP	130	AN22/RPI22/RA6	87
87	TDI/RPI20/RA4	TP	131	AN23/RPI23/RA7	88
88	TDO/RPI21/RA5	TP	132	PMA4/RJ4	TP
89	VDD	—	133	PMA5/RJ5	TP
90	OSC1/RPI60/RC12	63	134	PMA6/RJ6	TP
91	OSC2/CLKO/RC15	64	135	PMA7/RJ7	TP
92	VSS	—	136	AN24/PWM1L/RP80/RE0	93
93	PMCS2/RK12	TP	137	AN25/PWM1H/RPI81/RE1	94
94	PMCS1/RK11	TP	138	RP126/RG14	TP
95	RPI30/RA14	TP	139	RPI124/RG12	TP
96	RPI31/RA15	68	140	RP125/RG13	TP
97	RTCC/DMLN/RPI72/RD8	TP	141	VSS	—
98	ASDA1/DPLN/RPI73/RD9	TP	142	AN26/PWM2L/RP82/RE2	98
99	ASCL1/RPI74/RD10	69	143	AN27/PWM2H/RPI83/RE3	99
100	RPI75/RD11	70	144	AN28/PWM3L/RP84/RE4	100

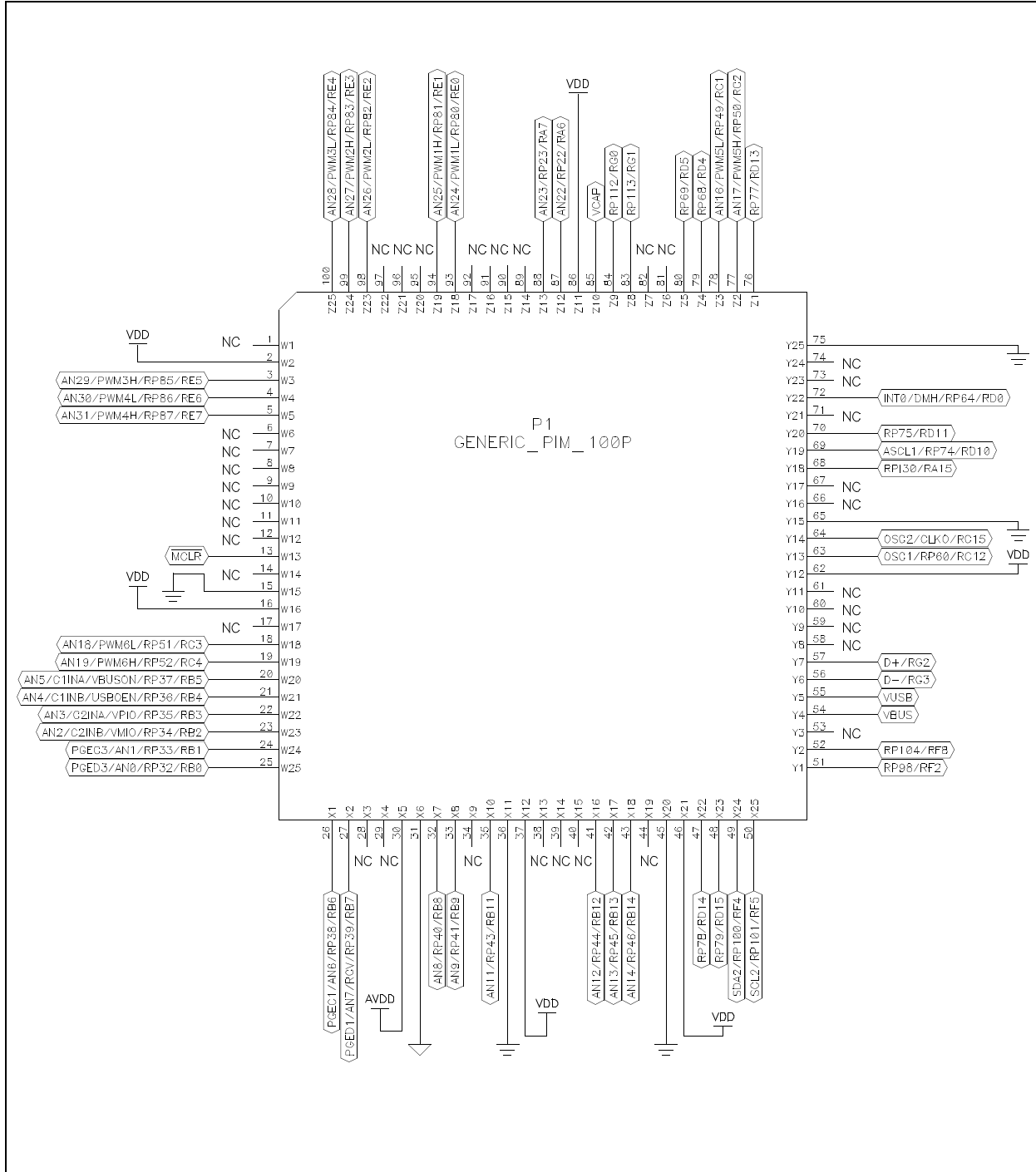**Legend:** TP = Test Point   — = This pin is tied to the power supply rail

FIGURE 1: **144-PIN DEVICE SCHEMATIC**

FIGURE 2:   **100-PIN PIM SOCKET SCHEMATIC**

dsPIC33EP512MU814 BYPASS/DECOUPLING CAPACITORS

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